RC-261 Equipment

ITEM 1-4

1 EA. Technical Manual

N S N R

Order No. 2206-Phila-45-06

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TM 11-2632

WAR DEPARTMENT TECHNICAL MANUAL

REMOTE CONTROL EQUIPMENT RC-261

RESTRICTED. DISSEMINATION OF RESTRICTED MATTER. The information contained in restricted documents and the essential characteristics of restricted materiel may be given to any person known to be in the service of the United States and to persons of undoubted loyalty and discretion who are cooperating in Government work, but will not be communicated to the public or to the press except by authorized military public relations agencies. (See also par. 28, AR 380-5, 15 Mar 1944.)

WAR DEPARTMENT 28 OCTOBER 1944

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WAR DEPARTMENT,
WASHINGTON 25, D. C., 28 OCTOBER 1944.

TM 11-2632, Remote Control Equipment RC-261, is published for the information and guidance of all concerned.

[A. G. 300.7 (14 Sep 44).]

BY ORDER OF THE SECRETARY OF WAR:

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The Adjutant General.

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IBn 11(2); IC 6, 11(5)
(For explanation of symbols see FM 21-6.)

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DESTRUCTION NOTICE

WHY —To prevent the enemy from using or salvaging this equipment for his benefit.

WHEN—When ordered by your commander.

HOW —1. Smash—Use sledges, axes, handaxes, pickaxes, hammers, crow-bars, heavy tools.

2. Cut—Use axes, handaxes, machetes.

3. Burn—Use gasoline, kerosene, oil, flame throwers, incendiary grenades.

4. Explosives—Use firearms, grenades, TNT.

5. Disposal—Bury in slit trenches, fox holes, other holes. Throw in streams. Scatter.

USE ANYTHING IMMEDIATELY AVAILABLE FOR DESTRUCTION OF THIS EQUIPMENT.

WHAT—1. Smash—Switches, relays, parts, headsets, microphones, and cases.

2. Cut—All wiring, microphone cords, and headset cords.

3. Burn—All cables, wires, diagrams, parts, and technical manuals.

4. Bend—All panels and cases.

5. Bury or scatter—All the remaining pieces of the above mentioned parts.

DESTROY EVERYTHING

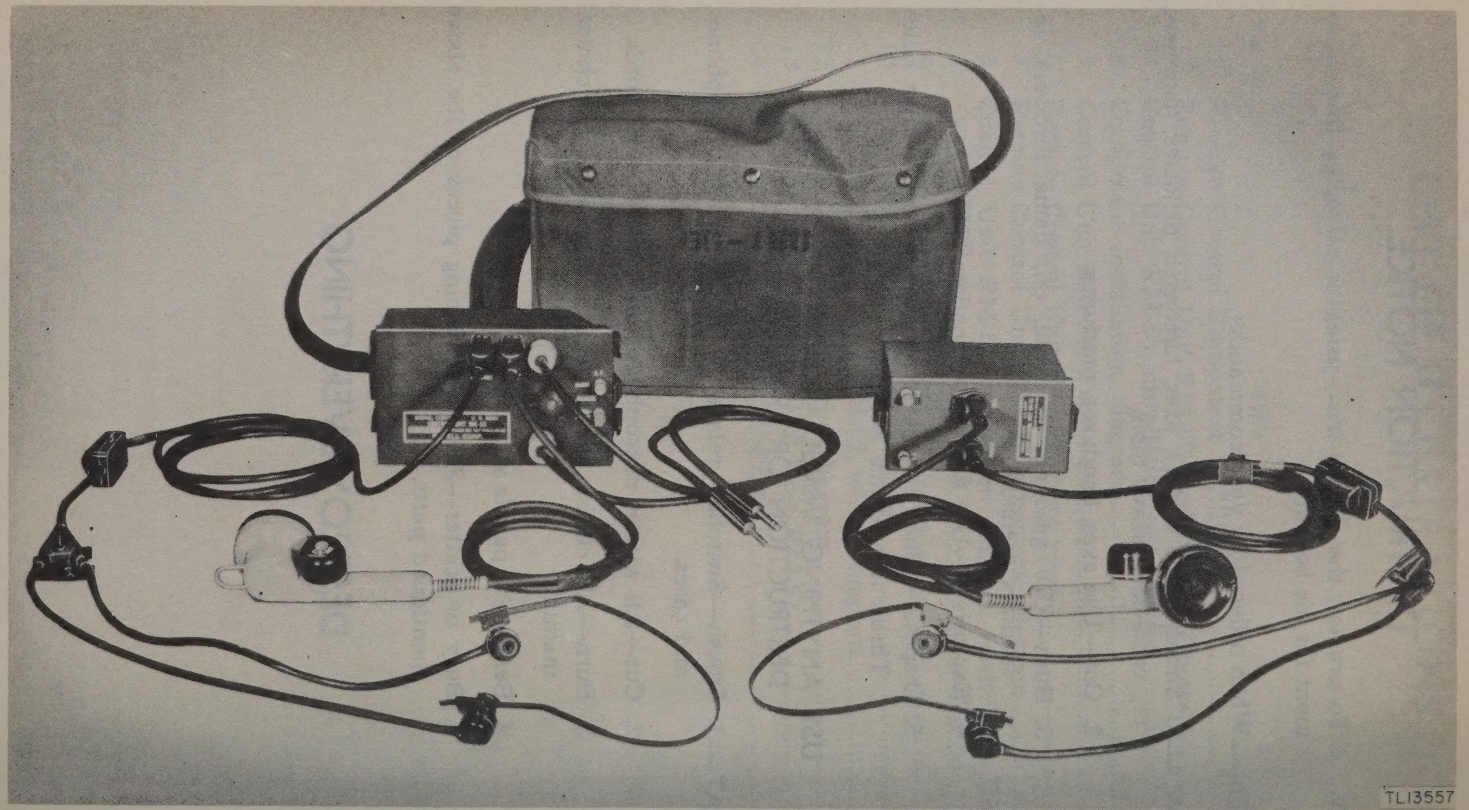


Figure 1. Remote Control Equipment RC-261.

SECTION I
DESCRIPTION

1. GENERAL.

Remote Control Unit RM-52 and Control Unit RM-53 are the major components of Remote Control Equipment RC-261 (fig. 1). Additional components required are two Microphones T-17, and two Headsets HS-30-U with Cord CD-605 attached. A canvas carrying Bag BG-186 is provided which holds one Remote Control Unit RM-52, one Control Unit RM-53, one Microphone T-17, and one Headset HS-30-U with Cord CD-605 attached. Only Remote Control Unit RM-52 and Control Unit RM-53 are covered in this technical manual.

a. Purpose. Remote Control Equipment RC-261 provides for remote operation of and voice communication over voice-operated radio sets on a preset frequency and with a preset adjustment of the volume control for distances up to ½-mile from the radio set.

b. Performance. With the control equipment connected as outlined in paragraph 6, the following circuit arrangements are provided:

Switch position on Control Unit RM-53	*Operation*
(1) RADIO	Radio set operated, modulated, and monitored exclusively from Control Unit RM-53.
(2) REMOTE	Radio set operated and modulated from Remote Control Unit RM-52, and monitored by both units.
(3) INTERPHONE	Radio set monitored by both Remote Control Unit RM-52 and Control Unit RM-53, and communication between units provided.

2. REMOTE CONTROL UNIT RM-52.

a. Battery Power. Remote Control Unit RM-52 operates from 6 volts dc which is supplied by four Batteries BA-30 (par. 5**a**).

b. Mechanical Description. (1) Remote Control Unit RM-52 is contained in a steel box with a removable cover. All components are assembled on the cover. This complete assembly slides into the box and is fastened in place by two hasp fasteners, one on each end of the case.

(2) The following connection terminals are mounted and clearly marked on the outside of the cover: two binding posts (marked L1 and L2, a phone jack marked PHONE, and a microphone jack marked MIC). All other components are assembled on the inside of the front cover. A bracket for mounting the batteries is provided as part of this assembly. A lamicoid diagram cemented to the battery bracket indicates the correct location and polarity for four Batteries BA-30.

(3) A HIGH-LOW impedance switch is included as part of the component assembly (par. 6).

3. CONTROL UNIT RM-53.

a. Battery Power. Control Unit RM-53 operates from 3 volts dc supplied by two Batteries BA-30 (par. 5**b**).

b. Mechanical Description. (1) Control Unit RM-53 is contained in a steel box with removable cover. With the exception of the batteries, all components are assembled on the cover. The assembly slides into the box and is fastened by two hasp fasteners, one on each end of the case.

(2) The lower sections of four additional hasp fasteners are welded to the box to provide for mounting the Control Unit RM-53 on a modified Radio Set SCR-619.

(3) The following connection terminals and controls are mounted and clearly marked on the outside of the cover: two binding post marked L1 and L2, a phone jack marked HEADSET, a microphone jack marked MIC, a switch knob with positions marked RADIO, REMOTE and INTERPHONE, and two cords.

(4) A HIGH-LOW impedance switch is included as part of the component assembly (par. 6**a**).

(5) Other components are assembled on the inside of the cover.

(6) A bracket for mounting two batteries BA-30 is welded to the end of the box. Battery terminals make contact with a terminal board when the cover assembly is fastened in place.

4. MAJOR COMPONENTS.

a. Remote Control Equipment RC-261 consists of the following components:

Quantity	*Name*	*Dimensions (in)*	*Weight (lb)*
1	Control Unit RM-53	8½x4⅜x4⅜	4 15/16
1	Remote Control Unit RM-52	7 1/16x3¼x5 3/16	3½
1	Bag BG-186	15½x5x9⅝	2

b. Remote Control Equipment RC-261 is packed for export shipment as shown below:

Quantity	*Name*	*Dimensions (in)*	*Weight (lb)*
3	Remote Control RC-261 Equipment—less batteries	22½x20¼x15	71 3/16

NOTE: Volume Remote Control Equipment RC-261 packed for export shipment is 4 cu. feet.

SECTION II

INSTALLATION AND OPERATION

5. BATTERY INSTALLATION.

a. Remote Control Unit RM-52. Unfasten hasp fasteners and remove the cover assembly from the box. Install four Batteries BA-30 in the positions indicated on the lamicoid diagram attached to the battery bracket (fig. 2).

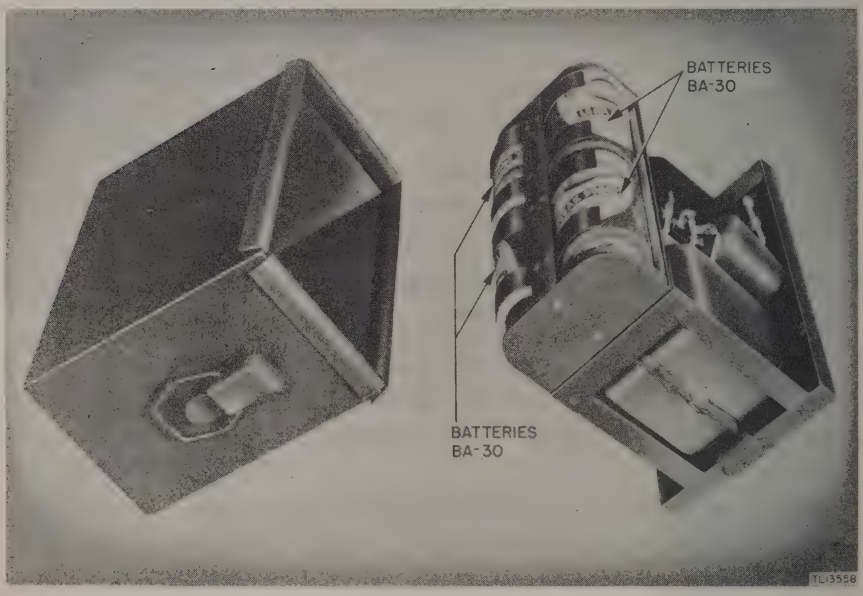


Figure 2. Remote Control Unit RM-52, installation of batteries.

b. Control Unit RM-53. Unfasten hasp fasteners and remove the cover assembly from box. Install two Batteries BA-30 as shown in figure 3.

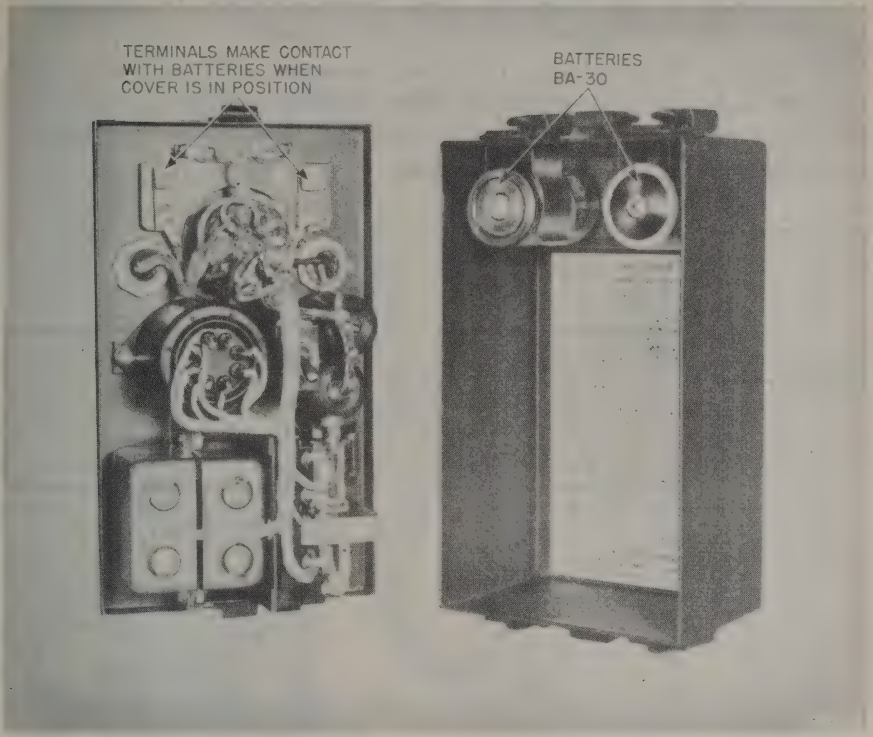


Figure 3. Control Unit RM-53, installation of batteries.

6. INSTALLATION OF EQUIPMENT (fig. 4).

a. The HIGH-LOW impedance switch in Control Unit RM-53 and in Remote Control Unit RM-52 must be set to correspond with the HIGH or LOW impedance output of the radio receiver used with the control equipment. These switches are located inside the units (figs. 9 and 10). Remove the cover assembly from each unit and set the switch to the HIGH or LOW position as necessary.

b. Hasp fasteners (the top sections welded to the radio set and the lower sections welded to Control Unit RM-53) are provided for attaching the control unit to a modified Radio Set SCR-619. The equipment may be used with other radio sets, although mounting provisions may not be provided.

c. Connect one end of a twisted-pair field wire not more than ½ mile in length to binding posts L1 and L2 on Control Unit RM-53.

Connect the other end of the wire to the corresponding binding posts on Remote Control Unit RM-52.

d. Connect plugs from Control Unit RM-53 to the microphone and headset jacks of the radio set. Plug PL-55 connects to the headset jack; Plug PL-68 connects to the microphone jack.

e. Connect Microphone T-17, and Headset HS-30-U with Cord CD-605 attached, to both control units. Microphone jacks are marked MIC on both units. Phone jacks are marked PHONE and HEADSET on the RM-52 and RM-53 respectively.

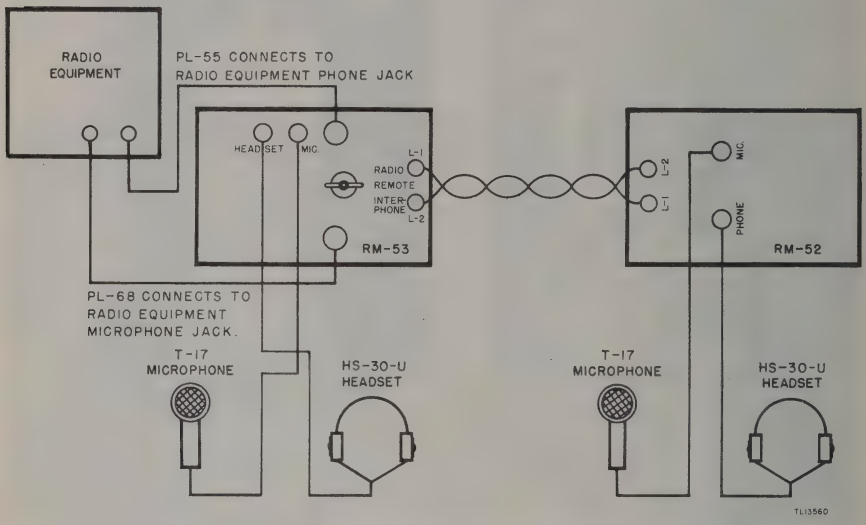


Figure 4. Equipment installation diagram.

7. OPERATION (figs. 5 and 6).

a. Radio. The radio set is operated, modulated, and monitored exclusively from Control Unit RM-53.

(1) Set the switch on Control Unit RM-53 to the RADIO position. In this position, Control Unit RM-53 monitors the incoming radio signal.

(2) Push the press-to-talk switch on the microphone connected to Control Unit RM-53 and talk into the microphone. This operates and modulates the radio transmitter from Control Unit RM-53.

b. Remote. The radio set is operated and modulated from Remote Control RM-52 and is monitored by both units.

(1) Set the switch on the Control Unit RM-53 to the REMOTE position. In this position both Control Unit RM-53 and Remote Control Unit RM-52 monitor the incoming radio signal.

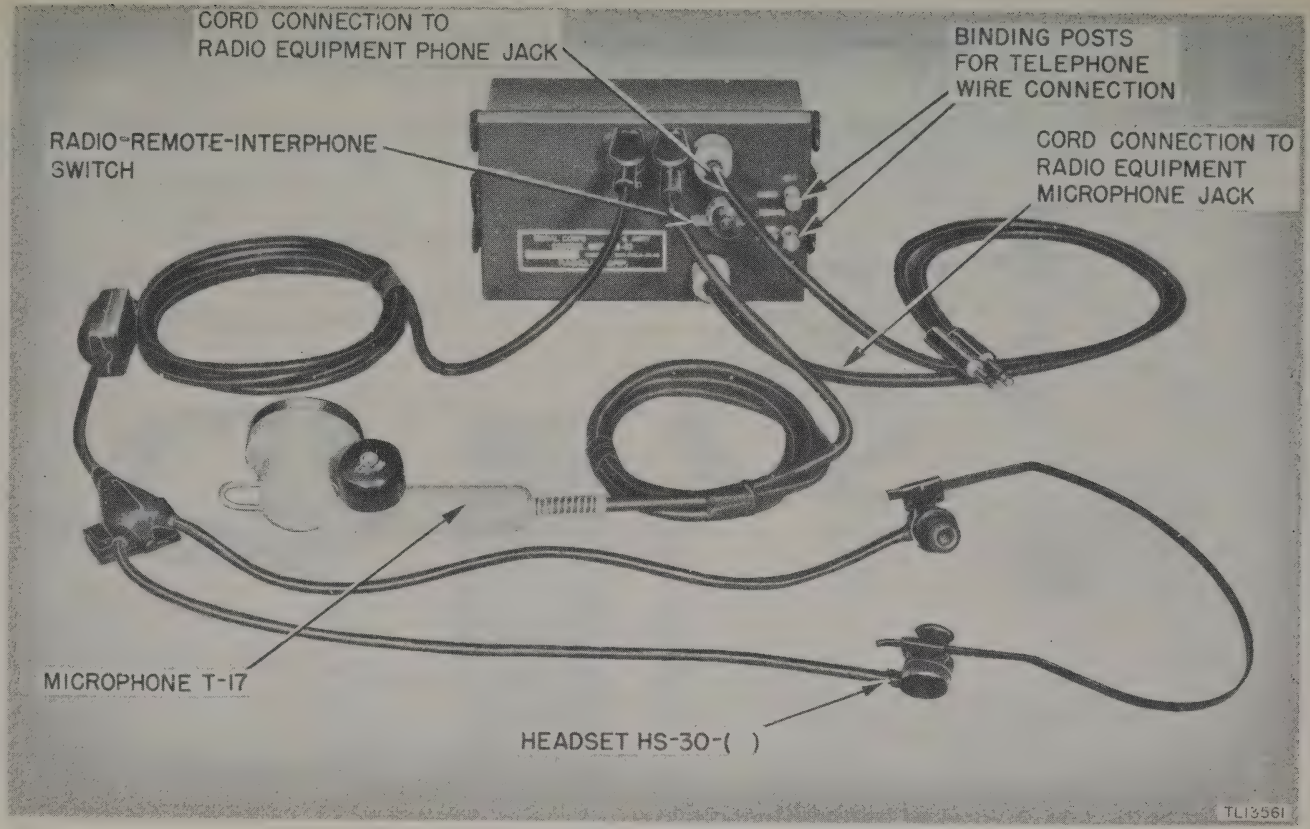


Figure 5. Control Unit RM-53, front view.

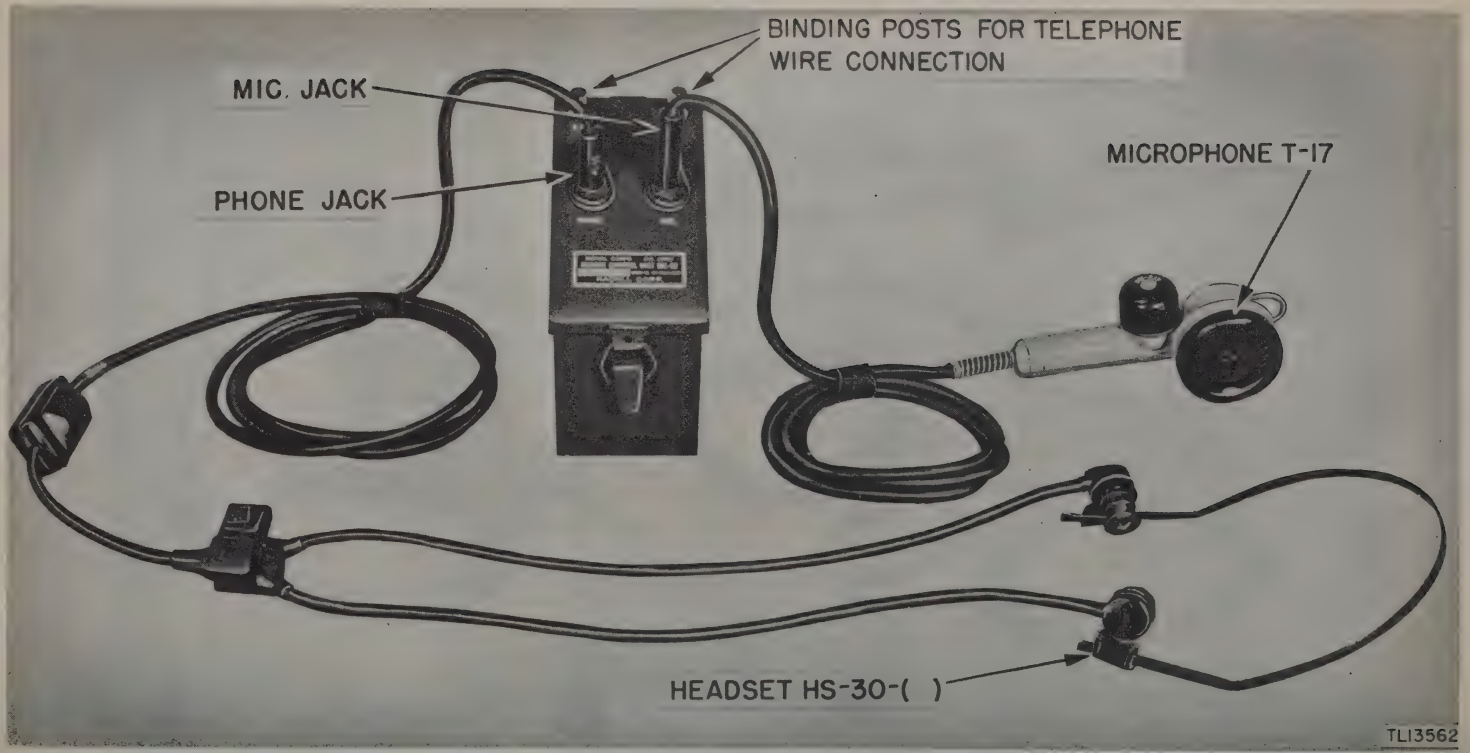


Figure 6. Remote Control Unit RM-52, front view.

(2) Push the press-to-talk switch on the microphone connected to Remote Control Unit RM-52 and talk into the microphone. This operates and modulates the radio transmitter from Remote Control Unit RM-52. In this position Control Unit RM-53 monitors Remote Control Unit [redacted] RM-52

c. Interphone. The radio set is monitored by both Remote Control Unit RM-52 and Control Unit RM-53, and communication between units is provided.

(1) Set the switch on the Control Unit RM-53 to the INTERPHONE position. In this position both Control Unit RM-53 and Remote Control Unit RM-52 monitor the incoming radio signal.

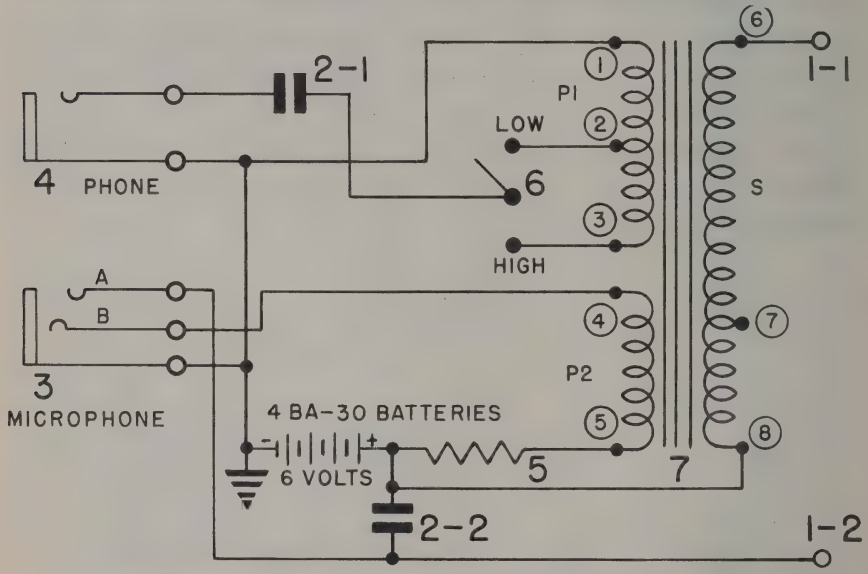
(2) To talk from Control Unit RM-53 to Remote Control Unit RM-52, push the press-to-talk switch on the microphone connected to the Control Unit RM-53.

(3) To talk from Remote Control Unit RM-52 to Control Unit RM-53, push the press-to-talk switch on the microphone connected to the Remote Control Unit RM-52.

SECTION III
FUNCTIONING OF PARTS

8. REMOTE CONTROL UNIT RM-52.

The circuit of Remote Control Unit RM-52 may be considered in two separate sections each performing a separate function (fig. 7).



APPARATUS LEGEND

REF. NO.	DESCRIPTION
1	BINDING POST.
2	CAPACITOR; 4mf 50 V.
3	JACK.
4	JACK.
5	RESISTOR; 390 OHM; $\frac{1}{2}$ W.
6	SWITCH; S P D T.
7	TRANSFORMER.

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Figure 7. Remote Control Unit RM-52, schematic diagram.

a. Transmit. (1) Microphone T-17 is connected by a plug to microphone Jack 3. One circuit of this is connected to transformer terminal (4), through P2 winding of transformer 7 to terminal (5). From transformer terminal (5), a 39-ohm ½-watt resistor 5 is connected in series with the positive lead of four Batteries BA-30. These batteries are connected in series to provide 6 volts. The negative end of Battery BA-30 is connected to the ground side of the microphone jack.

(2) Variations in microphone current, caused by sound reaching the diaphragm, cause a voltage to be induced into the secondary of transformer 7 which appears between output terminals 1-1 and 1-2.

(3) A 4-mf, 50-volt capacitor 2-2 connected in series with secondary terminals (8 on the transformer and 1-2 binding post) prevents direct current from flowing in the secondary winding.

(4) The press-to-talk switch on the microphone is connected to terminal A of the microphone jack and provides current flow for actuating the switching relay in Control Unit RM-53 which controls the operation of the radio transmitter.

b. Receive. (1) Audio power from Control Unit RM-53 is fed through terminal 1-1 of Remote Control Unit RM-52 through the transformer winding S and through capacitor 2-2 to terminal 1-2.

(2) Voltage induced in the P1 winding is fed to headphones through switch 6, and capacitor 2-1, to jack 4.

(3) Low- or high-impedance match is secured by setting switch 6 to the proper position.

9. CONTROL UNIT RM-53.

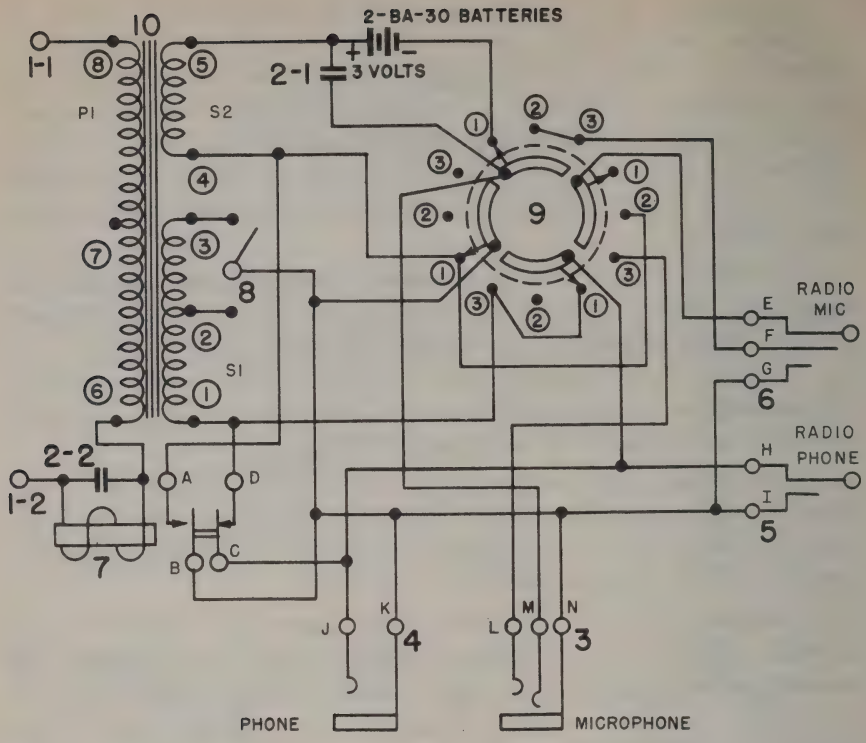
The circuit of Control Unit RM-53 may be considered in three separate sections each performing a separate function (fig. 8).

a. Interphone. (1) RECEIVING FROM REMOTE CONTROL UNIT RM-52.

(**a**) The signal is fed over telephone line from Remote Control Unit RM-52 to input terminals of Control Unit RM-53, to primary P1 of transformer 10, and induced in the secondary winding S1. It is then connected through relay 7, to connections J and K of jack 4.

(**b**) Switch 8, is adjustable for either high or low impedance.

(2) TALKING TO REMOTE CONTROL UNIT RM-52. Microphone jack 3, connects microphone through terminals M and N, through switch 9, and Batteries BA-30 (consisting of two cells) across transformer terminals (4) and (5) to S2 winding of transformer 10. Voltage induced in P1 winding appears across output terminals 1-1 and 1-2. Relay 7, in series with the output circuit is bypassed by capacitor 2-2



REF. NO.	DESCRIPTION
1	BINDING POST.
2	CAPACITOR; 4 mf 50 V.
3	JACK.
4	JACK.
5	PLUG.
6	PLUG.
7	RELAY; DP.DT. 3V.D.C.
8	SWITCH; S.P.D.T.
9*	SWITCH (SHOWN IN INTERPHONE POSITION.)
10	TRANSFORMER.

*① INTERPHONE POSITION ② REMOTE POSITION ③ RADIO POSITION

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Figure 8. Control Unit RM-53, schematic diagram (switch in INTERPHONE position).

to reduce a-c (alternating-current) impedance of relay 7 coil.

b. Radio. The radio set is operated in the normal fashion by the operator stationed at Control Unit RM-53. The microphone is connected to jack 3.

(1) The switch in the microphone is depressed, closing circuit L and M of jack 3. These circuits pass through switch 9 to terminals E and F of plug 6. Closing the circuit between E and F starts the transmitter.

(2) The microphone is connected across terminals F and G of plug 6. Circuit I of plug 5 is directly connected to terminal G of plug 6. Circuit M of jack 3 is connected through switch 9 to terminal F of plug 6.

(3) The headphone circuit is directly connected from receiver section of the radio equipment through terminals H and I of plug 5 to terminals J and K of jack 4.

c. Remote. The signal is fed over telephone line from Remote Control Unit RM-52 to 1-1 and 1-2 terminals of Control Unit RM-53. D-c voltage is supplied when the press-to-talk switch on the microphone is actuated. This voltage energizes relay 7 in Control Unit RM-53 which connects points A and B of relay 7 and disconnects terminals C and D. Relay contacts are connected through switch 9 to terminals E and G of plug 6. Connection of these terminals places the transmitter in operating condition.

SECTION IV
MAINTENANCE

NOTE: Failure or unsatisfactory performance of equipment will be reported on W.D., A.G.O. Form No. 468. If this form is not available, see TM-38-250.

10. GENERAL.

No tubes are used in Remote Control Equipment RM-261. Therefore, maintenance is confined to component parts such as switches, relays, connections, and batteries. Remote Control Equipment RM-261 is used in conjunction with voice-operated radio sets, and maintenance procedure on those sets will be found in the instructions which accompany them. The instructions given in this technical manual apply only to Remote Control Unit RM-52 and Control Unit RM-53.

11. REMOTE CONTROL UNIT RM-52.

a. Visual Check. When trouble is suspected in this unit, make a visual inspection of the cable connections such as plugs, jacks, and binding posts located on the front panel.

(1) Remove the unit from the case.

(2) Check the battery contacts for corrosion. Clean all dirt from the contact surface. Make sure the contacts have sufficient spring tension to make good connection with the end of the battery.

(3) Check the HIGH-LOW toggle switch to make sure it is tight.

(4) Check all internal wiring to make sure connections are tight.

(5) Wipe or blow all dust and dirt from the parts and the inside of the metal case.

b. Batteries. Check the batteries by substituting all four cells with new ones. Install batteries according to the outline on the label.

c. Continuity Check. A continuity check of each part will usually reveal the defect. Remove all batteries from the unit to be tested. Remove the microphone, headset, plugs, and the connections from the binding posts on the front panel. Refer to wiring diagram, figure 11.

(1) Check the HIGH-LOW toggle switch.

(2) Check resistor and capacitors for opens and shorts.

(3) Check transformer windings. The resistance of the windings of transformer 10 when measured with an ohmmeter that has a sensitivity of 1,000 ohms per volt, is as follows: (This also applies to transformer 7 in Control Unit RM-53.)

From terminal	*To terminal*	*Resistance (ohms)*
1	2	50
2	3	150
4	5	20
6	8	60

12. CONTROL UNIT RM-53.

a. Visual Check. Check all cable connections such as plugs, jacks, and binding posts, located on the front panel.

(1) Remove the unit from the case.

(2) Check the battery contacts for corrosion. Clean all dirt from the contact surface. Make sure the contacts have sufficient spring tension to make good connection with the end of the battery.

(3) Check the selector switch to make sure it is tight.

(4) Check the relay contacts and terminal screws. Check contact adjustments. Be sure that the nuts on the contact screws are tight. Make sure the bare pigtail leads on the relay do not touch each other.

(5) Check the HIGH-LOW toggle switch to make sure it is tight.

(6) Check all internal wiring to make sure all connections are tight, and are not cold-soldered or rosinjoints.

(7) Wipe or blow all dust and dirt from the parts, and the inside of the metal case.

b. Batteries. Check both cells by substituting new ones. *One cell is inserted in the spring clip with the positive downward; the other cell, positive upward.* Be sure battery clips are tight.

c. Continuity Check. Before making a continuity check, remove all batteries from the unit to be tested. Remove the microphone, headset plugs, and the connections from the binding posts on the front panel. Refer to wiring diagram, figure 12.

(1) Check all switches.

(2) Check relay coil and contacts. Relay coil resistance is 800 ohms when measured with a 1,000 ohm-per-volt ohmmeter.

(3) Check transformer windings (subpar. (3)11**c**).

13. REPLACING PARTS IN REMOTE CONTROL UNIT RM-52.

When replacing parts in this unit, solder all connections, and replace all wiring in its original position. Tighten all mounting screws and terminal screws. Be sure that solder does not drop on switches and between connecting lugs when connections are made.

a. Preparation. Remove the screws from the battery rack and swing the rack around out of the way. This can be done without disconnecting the wires from the rack. With the rack removed, all parts are accessible.

b. Wiring. All interior wiring of the unit is color-coded. As each connection is removed, make a written note of the color of the wire and number the terminal. This will serve as a guide to prevent errors when the connections are replaced on the new part.

c. Transformer. Before removing the transformer, note the exact position of the terminals. Mount the replacement part in the same position as the original part.

d. Binding Posts. When replacing binding posts, make sure the fiber insulating washers are in place on each side of the panel, and that the through-bolts are not shorting to the metal panel. Bend the soldering lugs up over the nuts so that they do not touch the metal panel.

e. Toggle Switch. Remove the outer nut from the switch shank, and swing the switch outward. Note the color coding of the wires. Remove the wires from the old switch and solder them to the new one. Apply only enough heat to make a smooth joint, as excess heat will oxidize the internal contacts of the switch. Replace the switch so that the locknut is approximately flush with the end of the shank.

14. REPLACING PARTS IN CONTROL UNIT RM-53.

With the exception of the relay and the selector switch, all parts are replaced as outlined in paragraph 13.

a. Relay. Remove the wires from the relay terminals (note color coding). Remove the mounting screws from the capacitors. This permits removal of the relay mounting screws. Mount the new relay. Mount the capacitors. Solder connections to the relay. Make sure that no solder drops on the relay armature spring or contacts.

b. Selector Switch. Remove the wires from the selector switch. Note color coding of wires to prevent errors when connecting to new switch. Do not allow solder or rosin to drop on switch or between the switch lugs.

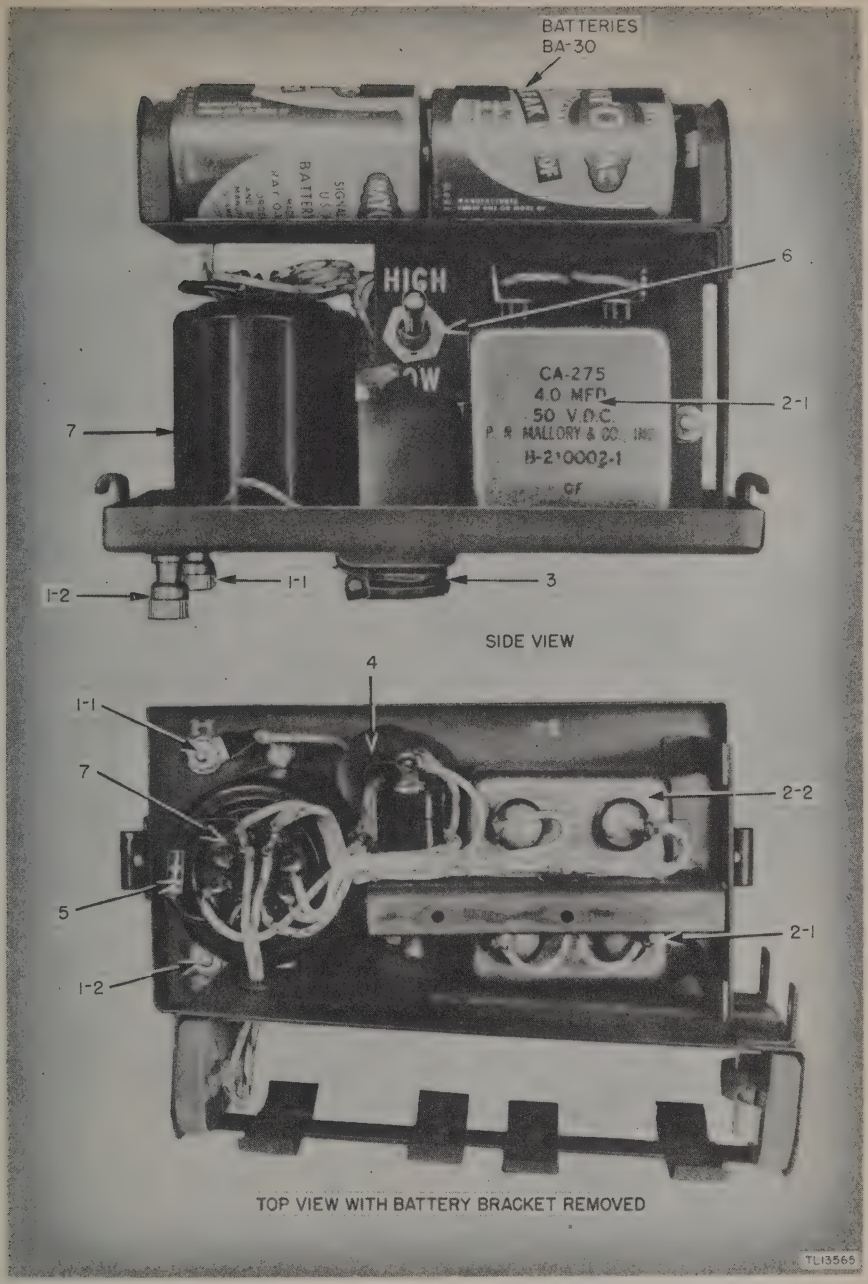

Figure 9. Remote Control Unit RM-52, interior view.

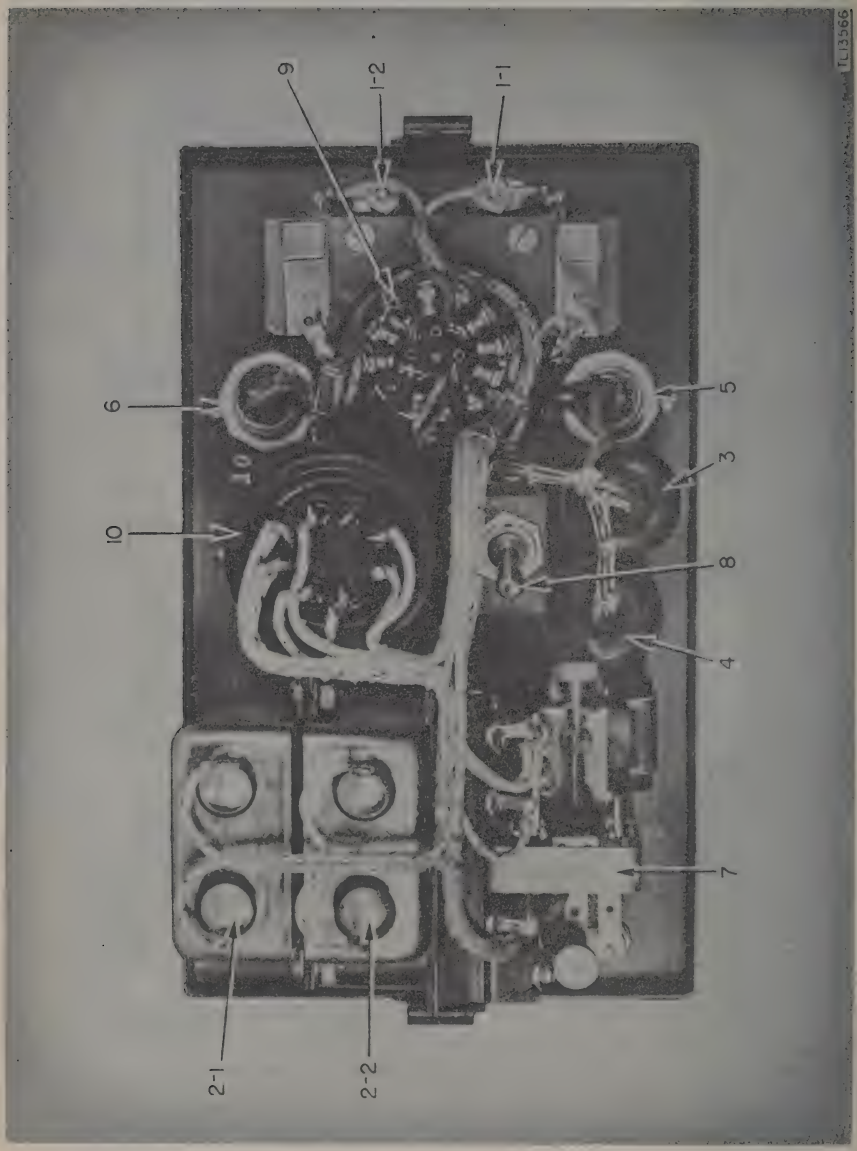

Figure 10. Control Unit RM-53, interior view.

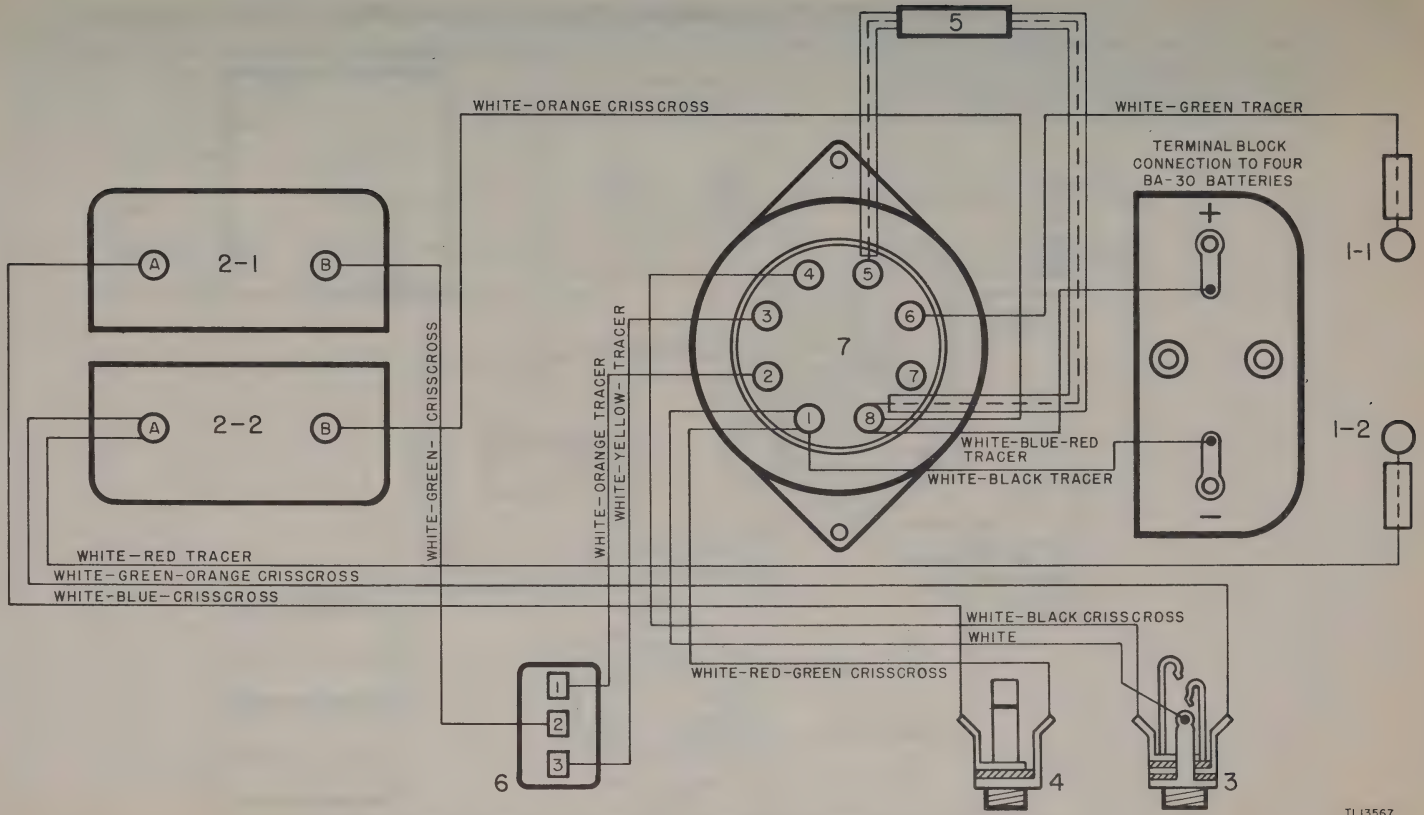

Figure 11. Remote Control Unit RM-52, wiring diagram.

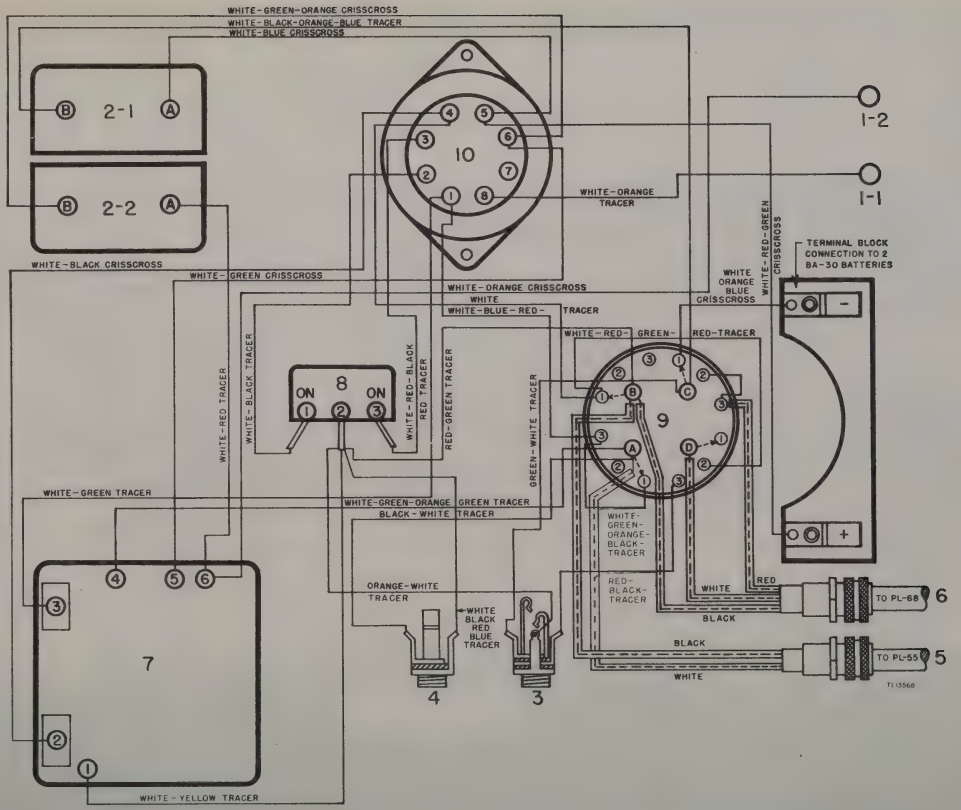

Figure 12. Control Unit RM-53, wiring diagram.

15. MAINTENANCE PARTS LIST FOR REMOTE CONTROL EQUIPMENT RC-261.

Ref symbol	Signal Corps stock No.	Name of part and description	Quan per unit	Running spares	Orgn stock	3d ech	4th ech	5th ech	Depot stock
	2Z551-186	BAG BG-186.	1					*	*
	3A30	BATTERY BA-30.	6	6				*	*
	2C680-53	CONTROL UNIT RM-53.	1			*		*	*
	2C680-52	REMOTE CONTROL UNIT RM-52.	1			*		*	*

* Indicates stock available.

15. MAINTENANCE PARTS LIST FOR REMOTE CONTROL EQUIPMENT RC-261 (contd).

a. Remote Control Unit RM-52.

Ref symbol	Signal Corps stock No.	Name of part and description	Quan per unit	Running spares	Orgn stock	3d ech	4th ech	5th ech	Depot stock
	2Z9401.61	BOARD, terminal: one long beryllium copper contact spring; phenolic; 2-1/2" long x 1-1/8" wide x 1/4" thick; Radell Corp dwg No. 12528-G2; (battery connection).	1			*	*	*	*
	2Z9402.206	BOARD ASSEMBLY, terminal: 2-short contact springs; phenolic; 2-1/2" long x 1-1/8" wide x 1/4" thick; Radell Corp dwg No. 12528-G1; (battery connections).	1			*	*	*	*
	2C680-52/5	BRACKET ASSEMBLY, battery: No. 20 USS Ga; 5.4" long x 2-1/2" wide, 1-1/4" high; steel brace across top has 4 riveted spring steel battery clips; Radell Corp dwg No. S12533, 12534.	1				*	*	*
2-1 2-2	3D275	CAPACITOR CA-275: fixed; paper; 4-mf + 14% -6%; 50 v d c (working).	2			*	*	*	*
	2Z5649	COVER ASSEMBLY, telephone jack: hinged on bore; rubber sealing cap; Galvin No. 1X35328; (weatherproof for jack).	2			*	*	*	*
	2C680-52/2	GASKET, rubber: Buna-S; 5-3/4" long x 2-7/8" wide x 7/32" thick; Radell Corp dwg No. 7843-10; (case seal).	1			*	*	*	*

* Indicates stock available.

15. MAINTENANCE PARTS LIST FOR REMOTE CONTROL EQUIPMENT RC-261 (contd).
a. Remote Control Unit RM-52 (contd).

Ref symbol	Signal Corps stock No.	Name of part and description	Quan per unit	Running spares	Orgn stock	3d ech	4th ech	5th ech	Depot stock
	2C680-52/1	GASKET, rubber: Buna-S; 1-3/16" x 1-5/6" x 1/32" with 0.375" diam hole; Radell Corp dwg No. 12527-32; (seals jack cover).	2			*	*	*	*
	2C680-52/3	GASKET, rubber: Buna-S; 3/8" OD x 9/64" ID x 5/64"; for 1/4" diam hole; Radell Corp dwg No. 12527-2; (seals binding post).	2			*	*	*	*
	2C680-52/4	GASKET, rubber: Buna-S; 11/16" OD x 3/8" ID x 3/32"; for 1/2" diam hole; Radell Corp dwg No. 12527-33; (seal between jack and case).	2			*	*	*	*
	6L50607	INSULATOR: fiber; jack cover; 1-3/16" x 15/16" x 1/32"; with 7/16" diam hole; Radell Corp dwg No. 12527-31.	2			*	*	*	*
	3G1770-24.6	INSULATOR, washer: hard fiber; 3/8" OD x 5/32" ID x 1/32"; finish one coat of INSL-X No. 95T; Radell Corp dwg No. 12527-1; (binding post).	4			*	*	*	*
3	3E7226-3	JACK ASSEMBLY, telephone: short-type; 3-conductor with retaining nut; enclosed in rubber hood with wires vulcanized in hood and cut to proper wiring length.	1			*	*	*	*

* Indicates stock available.

15. MAINTENANCE PARTS LIST FOR REMOTE CONTROL EQUIPMENT RC-261 (contd).
a. Remote Control Unit RM-52 (contd).

Ref symbol	Signal Corps stock No.	Name of part and description	Quan per unit	Run-ning spares	Orgn stock	3d ech	4th ech	5th ech	Depot stock
4	3E7226-2	JACK ASSEMBLY, telephone: short-type; 2-conductor; with retaining nut; enclosed in rubber hood with wires vulcanized in hood and cut to proper wiring length.	1			*	*	*	*
1-1 1-2	3Z250	POST, binding; Binding Post TM-150, screw; 3/8" knurled head; 5/16" base; stud No. 6-32 by 3/8" long dwg No. SC-D-530.	2			*	*	*	*
5	3RC21AE390K	RESISTOR, fixed: composition; 39 ohms ± 10%; 1/2-w; type No. RCZ1AF.	1			*	*	*	*
6	3Z9845-11.2	SWITCH, toggle: SPDT; C-H No. 8816-K2; AWS No. C75-15; (high-low impedance control).	1			*	*	*	*
7	2Z9940-280A	TRANSFORMER C-280-A: UTC No. 83718; (a-f line transformer).	1			*	*	*	*

* Indicates stock available.

15. MAINTENANCE PARTS LIST FOR REMOTE CONTROL EQUIPMENT RC-261 (contd).

b. Control Unit RM-53.

Ref symbol	Signal Corps stock No.	Name of part and description	Quan per unit	Running spares	Orgn stock	3d ech	4th ech	5th ech	Depot stock
	2Z9402.207	BOARD, terminal: 2 small berrylium copper contact clips in position; phenolic; 3-1/8" long x 1-1/16" wide x 1/4" thick; Radell Corp dwg No. 7846-G1; (battery connection).	1			*	*	*	*
	2Z9401.62	BOARD ASSEMBLY, terminal; copper bus bar No. 22 gauge; 2-3/8" long x 3/16" wide riveted in position; phenolic 2-3/8" long x 1-1/2" wide x 1/4" thick; Radell Corp dwg No. 7846-G2; (battery connections).	1			*	*	*	*
2-1 2-2	3D275	CAPACITOR CA-275: fixed; paper; 4.0 mf +14% -6%; 50 v d c (working).	2			*	*	*	*
6	3E7226	CORD, microphone; rubber-insulated; round; 29" long three No. 18 AWG copper conductors comprising 65 No. 36 AWG strands; Plug PL-68, cord clamp and cord sleeve; Radell Corp dwg No. 7847 group 1.	1			*	*	*	*
5	3E7226-1	CORD, telephone: rubber-insulated; round; 29" long; two No. 18 AWG comprising 65 strands No. 36 AWG; 1 Plug PL-55; 1 cord clamp; 1 cord sleeve; Radell Corp dwg No. 7847 group 2.	1			*	*	*	*
	2Z5649	COVER ASSEMBLY, telephone jack: hinged on bore; rubber sealing cap; Galvin No. LX35328; (weatherproof for jack).	2			*	*	*	*

* Indicates stock available.

15. MAINTENANCE PARTS LIST FOR REMOTE CONTROL EQUIPMENT RC-261 (contd).
b. Control Unit RM-53 (contd).

Ref symbol	Signal Corps stock No.	Name of part and description	Quan per unit	Running spares	Orgn stock	3d ech	4th ech	5th ech	Depot stock
	2C680-53/1	GASKET, rubber; Buna-S; 1-3/16" x 15/16" x 1/32"; with 0.375" diam hole; Radell Corp dwg No. 7842-48; (seal jack cover).	2			*	*	*	*
	2C680-53/4	GASKET, rubber: Buna-S; 7-1/2" long x 4-5/16" wide x 7/32" thick; Radell Corp dwg No. 7843-10; (case seal).	1			*	*	*	*
	2C680-53/3	GASKET, rubber: Buna-S; 11/16" OD x 3/8" ID x 3/32"; for 7/16" diam hole; Radell Corp dwg No. 7842-1 (seal between jack and case).	2			*	*	*	*
	2C680-53/6	GASKET, rubber: Buna-S; 7/8" OD x 5/8" ID x 1/16"; Radell Corp dwg No. 7842-6; (seals cable grip).	2			*	*	*	*
	2C680-53/5	GASKET, rubber: Buna-S; 3/8" OD x 9/64" ID x 5/64"; for 1/4" diam hole; Radell Corp dwg No. 7842-2; (seals binding post).	2			*	*	*	*
	2C680-53/2	GLAND ASSEMBLY, water tight: Radell Corp; consists of: 1-Steel bushing SC-D-14279-52 1-Rubber gasket SC-D-7842-5 1-Fiber Gasket SC-D-14279-51 1-Steel screw SC-D-14279-53 1-Rubber gasket SC-D-7842-47 1-Fiber gasket SC-D-14279-50	1			*	*	*	*

* Indicates stock available.

15. MAINTENANCE PARTS LIST FOR REMOTE CONTROL EQUIPMENT RC-261 (contd).
b. Control Unit RM-53 (contd).

Ref symbol	Signal Corps stock No.	Name of part and description	Quan per unit	Run-ning spares	Orgn stock	3d ech	4th ech	5th ech	Depot stock
		1-Gland nut SC-D-14279-54 1-Washer SC-D-14279-56 (used with Switch No. 9)							
	3G1770-24.7	INSULATOR: hard fiber; 3/8" OD x 5/32" ID x 1/32"; Radell Corp dwg No. 7842-7; (binding post).	4			*	*	*	*
	3G1770-56.3	INSULATOR: hard fiber; 7/8" OD x 21/32" ID x 1/16"; Radell Corp dwg No. 7842-8; (cable grip).	2			*	*	*	*
	3G1770-76	INSULATOR: hard fiber; 1-3/16" x 15/16" x 1/32"; with 7/16" diam hole; Radell Corp dwg. No. 7842-49; (insulation jack cover).	2			*	*	*	*
3	3E7226-3	JACK ASSEMBLY, telephone: short-type; 3-conductor; with retaining nut; jack to be enclosed in rubber hood with wires vulcanized in hood and cut to proper wiring length.	1			*	*	*	*
4	3E7226-2	JACK ASSEMBLY, telephone: short-type; 3-conductor; with retaining nut; jack to be enclosed in rubber hood with wires vulcanized in hood and cut to proper wiring length.	1			*	*	*	*
	2Z5824.58	KNOB: zinc alloy; silver-lacquered; 0.249" diam shaft; Single No. 4-40 RH mach. screw; marked with arrow; Radell Corp dwg No. 7842-11; (control switch No. 9).	1			*	*	*	*

* Indicates stock available.

15. MAINTENANCE PARTS LIST FOR REMOTE CONTROL EQUIPMENT RC-261 (contd).

b. Control Unit RM-53 (contd).

Ref symbol	Signal Corps stock No.	Name of part and description	Quan per unit	Running spares	Orgn stock	3d ech	4th ech	5th ech	Depot stock
1 - 1 1 - 2	3Z250	POST, binding: Binding Post TM-150; screw; 3/8" knurled head; 5/16" base; stud No. 6-32 by 3/8" long; dwg No. SC-D-530.	2			*	*	*	*
7	2Z7588-23	RELAY, starting: DPDT; allied cont type BX14; Radell dwg No. 7841-26; (transmitter control).	1			*	*	*	*
8	3Z9845-11.2	SWITCH, toggle: SPST; C-H No. 8816-K2; ANS No. ST13D; (high-low impedance control).	1			*	*	*	*
9	3Z9827.34	SWITCH, rotary: single-gang; Mallory type No. 3143J; modified as shown on SC-D-78412-12 (selector switch).	1			*	*	*	*
10	2Z9940-280A	TRANSFORMER C-280-A: UTC No. 83718 (a-f line transformer).	1			*	*	*	*

* Indicates stock available.

APPENDIX I

16. MOISTUREPROOFING AND FUNGIPROOFING.

a. General. The operation of Signal Corps equipment in tropical areas where temperature and relative humidity are extremely high requires special attention. The following items represent problems which may be encountered in operation:

(1) Resistors, capacitors, coils, chokes, transformer winding fail.

(2) Electrolytic action takes place in resistors, coils, and transformer windings causing eventual break-down.

(3) Hook-up wire and cable insulation break down. Fungus growth accelerates deterioration.

(4) Moisture forms electrical leakage paths on terminal boards and insulating strips.

(5) Moisture provides leakage paths between battery terminals.

b. Treatment. A moistureproofing and fungiproofing treatment has been devised which, if properly applied, provides a reasonable degree of protection against fungus growth, insects, corrosion, salt spray, and moisture. The treatment involves the use of a moisture- and fungi-resistant varnish applied with a spray gun or brush. Refer to TB SIG 13, Moistureproofing and Fungiproofing Signal Corps Equipment, for a detailed description of the varnish-spray method of moisture-proofing and fungiproofing and the supplies and equipment required in this treatment.

> CAUTION: Varnish spray may have toxic effects if inhaled. To avoid inhaling spray, use respirator if available; otherwise, fasten cheese-cloth or other cloth material over nose and mouth.

c. *Step-by-step Instructions for Treating Remote Control Unit RM-52.*

(1) DISASSEMBLY.

(a) Release two catches and remove RM-52 from case[1].

[1]Not to be treated.

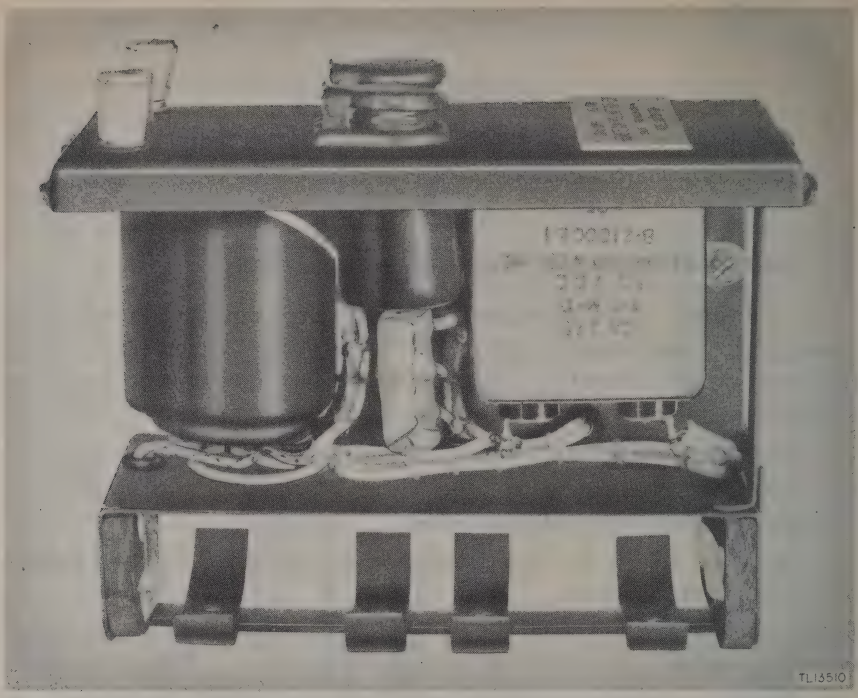

Figure 13. Masking of Remote Control Unit RM-52.

(**b**) Remove four Batteries BA-30[1] from battery compartment.

(2) PREPARATION.

(**a**) Make all repairs and adjustments necessary for proper operation of the equipment.

(**b**) Thoroughly clean the unit by removing all oil, dirt, rust, or fungi adhering to any of the components.

(3) MASKING. Cover the following components with masking tape as shown in figure 13.

(**a**) Contacts on bakelite strips in battery compartment.

(**b**) Openings around terminals of HIGH-LOW switch.

(**c**) Two binding posts on front panel.

(4) DRYING.

(**a**) Place equipment in drying oven and bake from 2 to 3 hours at 160°F. *Do not exceed 160°F.*

(**b**) If wax should begin to melt on any of the components, lower baking temperature and increase baking time. For each 10° drop in baking temperature increase baking time one hour.

[1]Not to be treated.

(5) VARNISHING.

(**a**) Apply three coats of moistureproofing and fungiproofing varnish (Lacquer, Fungus-resistant, Spec. No. 71-2202, Stock No. 6G1005.3 or equal) with spray gun. Allow each coat to dry 15 to 20 minutes before applying the next coat.

(**b**) Inspect treated equipment and apply varnish with a brush to those portions not reached by spray gun. Be sure all components are adequately protected by varnish.

(6) REASSEMBLY.

(**a**) Remove all masking tape.

(**b**) Clean all contacts with varnish remover, and burnish the contacts.

(**c**) Reassemble equipment by following disassembly instructions in reverse order.

(**d**) Mark cases MFP with date of treatment.

(**e**) Check over-all performance of equipment.

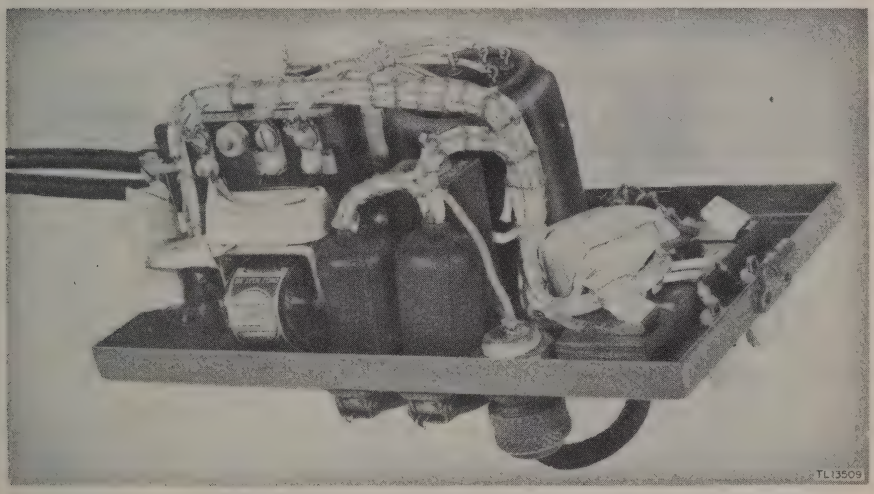

Figure 14. Masking of Control Unit RM-53.

d. *Step-by-step Instructions for Treating Control Unit RM-53.*

(1) DISASSEMBLY.

(**a**) Release two catches and remove RM-53 from case[1]. Leave two Batteries BA-30[1] in case.

(**a**) Make all repairs and adjustments necessary for proper operation of the equipment.

(**b**) Thoroughly clean the unit by removing all oil, dirt, rust, or fungi adhering to any of the components.

(2) PREPARATION.

(**a**) Make all repairs and adjustments necessary for proper operation of the equipment.

(**b**) Thoroughly clean the unit by removing all oil, dirt, rust, or fungi adhering to any of the components.

(3) MASKING. Cover the following components with masking tape as shown in figure 14.

(**a**) Spring, armature, and contacts of relay.

(**b**) Openings around terminals of HIGH-LOW switch.

(**c**) Case openings and contacts of wafer switch.

(**d**) Battery contacts.

(**e**) Two binding posts on front panel.

CAUTION: DO NOT SPRAY PLUGS PL-55 AND PL-68. CAPS MAY BE UNSCREWED AND VARNISH CAREFULLY BRUSHED ON BAKELITE INSULATION DURING RETOUCHING PROCESS.

(4) DRYING. Refer to subpar. **c**(4) above.

(5) VARNISHING. Refer to subpar. **c**(5) above.

(6) REASSEMBLY. Refer to subpar. **c**(6) above.

---

[1]Not to be treated.

ORDER No. 2206—P—45-06: 30,000: OCTOBER, 1944

WAR DEPARTMENT

UNSATISFACTORY EQUIPMENT REPORT

FOR	TECHNICAL SERVICE MATÉRIEL		DATE
FROM	ORGANIZATION		STATION
TO	NEXT SUPERIOR HEADQUARTERS	STATION	TECHNICAL SERVICE

COMPLETE MAJOR ITEM

NOMENCLATURE	TYPE		MODEL
MANUFACTURER	U. S. A. REG. No.	SERIAL No.	DATE RECEIVED
EQUIPMENT WITH WHICH USED *(if applicable)*			

DEFECTIVE COMPONENT—DESCRIPTION AND CAUSE OF TROUBLE

PART No.	TYPE	MANUFACTURER	DATE INSTALLED
DESCRIPTION OF FAILURE AND PROBABLE CAUSE *(If additional space is required, use back of form)*			

DATE OF INITIAL TROUBLE	TOTAL TIME INSTALLED			TOTAL PERIOD OF OPERATION BEFORE FAILURE					
	YEARS	MONTHS	DAYS	YEARS	MONTHS	DAYS	HOURS	MILES	ROUNDS

BRIEF DESCRIPTION OF UNUSUAL SERVICE CONDITIONS AND ANY REMEDIAL ACTION TAKEN

TRAINING OR SKILL OF USING PERSONNEL			RECOMMENDATIONS *(If additional space is required, use back of form)*
POOR	FAIR	GOOD	

ORIGINATING OFFICER

TYPED NAME, GRADE, AND ORGANIZATION	SIGNATURE

FIRST ENDORSEMENT

TO CHIEF	TECHNICAL SERVICE	OFFICE	
NAME, GRADE, AND STATION		STATION	DATE

Instructions

1. It is imperative that the chief of technical service concerned be advised at the earliest practical moment of any constructional, design, or operational defect in matériel. This form is designed to facilitate such reports and to provide a uniform method of submitting the required data.
2. This form will be used for reporting manufacturing, design, or operational defects in matériel, petroleum fuels, lubricants, and preserving materials with a view to improving and correcting such defects, and for use in recommending modifications of matériel.
3. This form will not be used for reporting failures, isolated material defects or malfunctions of matériel resulting from fair-wear-and-tear or accidental damage nor for the replacement, repair or the issue of parts and equipment. It does not replace currently authorized operational or performance records.
4. Reports of malfunctions and accidents involving ammunition will continue to be submitted as directed in the manner described in AR 750-10 (change No. 3).
5. It will not be practicable or desirable in all cases to fill all blank spaces of the report. However, the report should be as complete as possible in order to expedite necessary corrective action. Additional pertinent information not provided for in the blank spaces should be submitted as inclosures to the form. Photographs, sketches, or other illustrative material are highly desirable.
6. When cases arise where it is necessary to communicate with a chief of service in order to assure safety to personnel, more expeditious means of communication are authorized. This form should be used to confirm reports made by more expeditious means.
7. This form will be made out in triplicate by using or service organization. Two copies will be forwarded direct to the technical service; one copy will be forwarded through command channels.
8. Necessity for using this form will be determined by the using or service troops.

W. D., A. G. O. Form No. 468
30 August 1944

This form supersedes W. D., A. G. O. Form No. 468, 1 December 1943, which may be used until existing stocks are exhausted.

U. S. GOVERNMENT PRINTING OFFICE 16—41546-1